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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Inventor : Lujun Chen et al.

Appln. No.: 09/843,370

Filed : April 26, 2001

For : GIANT MAGNETORESISTIVE SENSOR
HAVING SELF-CONSISTENT
DEMAGNETIZATION FIELDS

Docket No.: S01.12-0730/STL 9852

Group Art Unit: 2652

Examiner:

RECEIVED

MAR 11 2002

SECOND PRELIMINARY AMENDMENT

Technology Center 2600

Box Non-Fee Amendment
Commissioner for Patents
Washington, D.C. 20231

I HEREBY CERTIFY THAT THIS PAPER IS BEING
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PATENT ATTORNEY

Please amend the above-identified application as
follows:

IN THE CLAIMS

Please amend claims 1 and 2 as follows:

1. (Amended) A spin valve sensor for use with a data storage system to produce a giant magnetoresistive (GMR) effect in response to applied magnetic fields, the sensor comprising:
a sense current (I), which is horizontally oriented in a longitudinal direction;
a first ferromagnetic free layer having a magnetization (M₁) in a first direction that is aligned in the longitudinal direction of the sense current, when the first ferromagnetic free layer is in a quiescent state;
a second ferromagnetic free layer having a magnetization (M₂) in a second direction that is


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